EP 1 182 159 A3 (11)

(12)

EUROPEAN PATENT APPLICATION

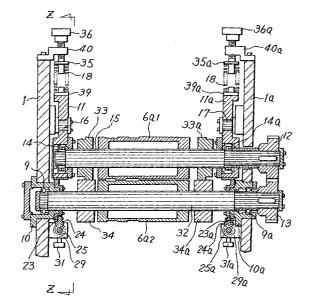
- (88) Date of publication A3: 23.07.2003 Bulletin 2003/30
 - (51) Int CI.7: **B65H 20/02**
- (43) Date of publication A2: 27.02.2002 Bulletin 2002/09
- (21) Application number: 01304874.9
- (22) Date of filing: 04.06.2001
- (84) Designated Contracting States: AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE TR **Designated Extension States:**
 - AL LT LV MK RO SI
- (30) Priority: 28.07.2000 JP 2000228224
- (71) Applicant: TOKYO KIKAI SEISAKUSHO LTD. Tokyo (JP)
- (72) Inventors:
 - · Kitai, Mitsuo Yokohama-shi, Kanagawa-ken (JP)

- Sakakura, Takanobu Inagi-shi, Tokyo (JP)
- · liizumi, Yuuji Kawasaki-shi, Kanagawa-ken (JP)
- (74) Representative: Howe, Steven Lloyd Wise Commonwealth House, 1-19 New Oxford Street London WC1A 1LW (GB)

(54)Nipping roller gap adjusting device

Nipping roller gap adjustment for adjusting the gap between a first roller (6a2) rotatably provided at a prescribed position and a second, movable, roller (6a1). The nipping-roller gap adjusting device comprises a pair of supporting arms (11,11a) one end of each of the supporting arms being swingably supported and the other end thereof rotatably supporting the second roller (6a1). A pressing force imparting means forces the support arms in such a direction that cause the second roller (6a1) to approach the first roller (6a2) and which, at the same time, can adjust the magnitude of the force. A minimum gap setting means can set a minimum gap between the first roller (6a1) and the second roller (6a2). A gap adjusting means adjusts the size of the gap between the first roller (6a1) and the second roller (6a2). A fixed frame member rotatably supports the first roller (6a1). The gap adjusting means is mounted on the fixed frame member.

FIG. 2





EUROPEAN SEARCH REPORT

Application Number EP 01 30 4874

Category	Citation of document with indication of relevant passages	on, where appropriate,	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.CI.7)		
D,X	PATENT ABSTRACTS OF JAP vol. 1998, no. 11, 30 September 1998 (1998 & JP 10 147467 A (GOSS	-09-30) GRAPHIC SYST INC),	1,3,4	B65H2O/O2		
Y	2 June 1998 (1998-06-02 * abstract *)	5			
Y	US 3 674 194 A (MOESSER 4 July 1972 (1972-07-04 * column 4, line 9 - li *)	5			
(US 5 072 872 A (CASSET 17 December 1991 (1991- * column 4, line 40 - 1	12-17)	1,3,4			
Ρ,Χ	EP 1 086 916 A (HEIDELB AG) 28 March 2001 (2001 * the whole document *		1,4			
A	US 3 714 893 A (COLE J) 6 February 1973 (1973-0 * figures *		2	TECHNICAL FIELDS SEARCHED (Int.CI.7)		
A	US 4 060 187 A (GROB JE 29 November 1977 (1977-					
A	US 5 344 058 A (BAFFO M 6 September 1994 (1994– 					
	The present search report has been d					
Place of search THE HAGUE		Date of completion of the search 26 May 2003	Len	Lemmen, R		
X : part Y : part docu	ATEGORY OF CITED DOCUMENTS cicularly relevant if taken alone cicularly relevant if combined with another ument of the same category anological background	T: theory or print E: earlier patent after the filing D: document cite L: document cite	ciple underlying the document, but pub date in the application of for other reasons	invention lished on, or		
O : non-written disclosure P : intermediate document			&: member of the same patent family, corresponding document			

ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO.

EP 01 30 4874

This annex lists the patent family members relating to the patent documents cited in the above–mentioned European search report. The members are as contained in the European Patent Office EDP file on The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

26-05-2003

	Patent documer cited in search rep		Publication date		Patent family member(s)	Publication date
JP	10147467	A	02-06-1998	US AU AU CA CN EP JP	5738264 A 722199 B2 3612297 A 2215074 A1 1180646 A ,E 0835836 A2 2818161 B2	14-04-1998 27-07-2000 23-04-1998 11-04-1998 06-05-1998 15-04-1998 30-10-1998
US	3674194	A	04-07-1972	DE AT GB NL	1811203 A1 293860 B 1236869 A 6915961 A	11-06-1970 25-10-1971 23-06-1971 29-05-1970
US	5072872	A	17-12-1991	FR CA EP JP	2643053 A1 2009887 A1 0383704 A1 3023135 A	17-08-1990 15-08-1990 22-08-1990 31-01-1991
EP	1086916	A	28-03-2001	DE EP FR JP US	19940398 A1 1086916 A2 2797800 A1 2001072289 A 6378749 B1	01-03-2001 28-03-2001 02-03-2001 21-03-2001 30-04-2002
us	3714893	A	06-02-1973	NONE		
US	4060187	Α	29-11-1977	CH CA DE ES FR GB IT JP JP SE SE	602462 A5 1048565 A1 2653173 A1 453674 A1 2332941 A1 1546599 A 1069793 B 1062116 C 52066267 A 56003303 B 419633 B 7613172 A	31-07-1978 13-02-1979 08-06-1977 16-11-1977 24-06-1977 23-05-1979 25-03-1985 31-08-1981 01-06-1977 24-01-1981 17-08-1981 26-05-1977
us	5344058	А	06-09-1994	CA EP JP WO	2105476 A1 0574421 A1 6508330 T 9215512 A1	06-09-1992 22-12-1993 22-09-1994 17-09-1992

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82